Program : **Diploma in Automobile Engineering**	
Course Code : **5059C**	Course Title: **Two And Three Wheeler Service Lab**
Semester : **5**	Credits: **1.5**
Course Category: **Program Elective**	
Periods per week: **3 (L:0, T:0, P:3)**	Periods per semester: **45**

Course Objectives:

- To know about different types of tools and equipment in two and three wheeler workshop
- To demonstrate and conduct experiments on engines, fuel, cooling and lubrication systems. Repair transmission, steering, suspension and braking systems.
- To maintain the electrical systems of two and three wheelers and to know about electrical auto rickshaw.
- To conduct a driving test, to find out the condition of the vehicle after repair.

Course Prerequisites:

Topic	Course code	Course name	Semester
Basic knowledge of IC Engines		Basic automobile engineering	2

Course Outcomes:

On completion of the course, the student will be able to:

COs	Description	Duration (Hours)	Cognitive level
CO1	Make use of different tools used in Automobile workshop	6	Applying
CO2	Utilize the procedure of dismantling and assembling on 2 stroke and 4 stroke engines (single cylinder)	14	Applying
CO3	Plan the overhauling procedure on transmission system, steering and suspension System of two and three wheelers.	12	Applying
CO4	Identify constructional details of 3 wheeler chassis frame.	10	Applying
	Lab Exam	3	

CO-PO Mapping:

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3			2		2	2
CO2	3			2			
CO3	3			2			
CO4	3			2			

3-Strongly mapped, 2-Moderately mapped, 1-Weakly mapped

Course Outline:

Module Outcomes	Description	Duration (Hours)	Cognitive Level
CO1	**Make use of different tools used in Automobile workshop**		
M1.01	Make use of different tools used in two and three wheeler workshop	3	Applying
M1.02	Identify the application of measuring tools and specific tools in Automobile Garage.	3	Applying
CO2	**Utilize the procedure of dismantling and assembling on 2 stroke and 4 stroke engines (single cylinder)**		
M2.01	Make use of Dismantling and assembling procedure of single cylinder 2 stroke engine and identify the parts.	3	Applying
M2.02	Apply dismantling and assembling procedure on single cylinder 4 stroke engine and identify the parts.	3	Applying
M2.03	Plan trouble shooting of Capacitor Discharge Ignition system of 2 and three wheelers.	3	Applying
M2.04	Plan servicing and tuning of 2 and 3 wheeler carburettor.	5	Applying
	Lab Exam – I	1.5	
CO3	**Plan the overhauling procedure on transmission system, steering and suspension system of two and three wheelers.**		
M3.01	Utilize Two wheeler chain sprocket replacement and rear Brake system cleaning procedure.	3	Applying
M3.02	Make use of Accelerator, brake and clutch adjustment as per specification.	3	Applying
M3.03	Plan dismantling and assembling procedure of two wheeler gear box and finding gear ratio.	3	Applying
M3.04	Utilize Dismantling and assembling of three wheeler gear box and finding gear ratios.	3	Applying

CO4	Identify constructional details of 3 wheeler chassis frame.		
M4.01	Plan Removal and refitting of propeller shaft and suspension from three wheeler	4	Applying
M4.02	Utilize dismantling and assembling procedure on two wheeler Transmission-continuously variable transmission (CVT).	3	Applying
M4.03	Plan basic electrical testing in two and three wheelers.	3	Applying
M 4.04	Make use of driving practice in two and three wheelers.		Applying
	Open Ended Projects**		Applying
	Lab Exam – II	1.5	

** - Suggested Open Ended Projects

(Not for End Semester Examination but compulsory to be included in Continuous Internal Evaluation. Students can do open ended experiments as a group of 2-3. There is no duplication in experiments between groups.

1. Build database from service manual and preparation of maintenance schedule chart.
2. Choose and show the industry set up of two and three wheeler workshop and make use of special purpose tools.
3. Utilize the specification chart of battery and motor used in electrical two and three wheelers.

Text / Reference:

T/R	Book Title/Author
T1	Two and Three wheeler Technology - Dhruv U. Panchal
R2	Irving. P. E., "Motor Cycle Engineering", Temple Press Book, London – 1992.
R3	Newton Steed, "The Motor Vehicle", McGraw Hill Book Co. Ltd., New Delhi
R4	Two wheeler and three wheeler, Ramalingam K K SCITECH Publication, Chennai

Online Resources:

Sl.No	Website Link
1	https://youtu.be/kTuybtMAiN8
2	https://youtu.be/DUK6gjbsLpQ
3	https://youtu.be/3E1SXG7VkQk